# **RD-250s/300s**

#### **SPECIFICATIONS**

## **SERVICE NOTES** First Edition

88 key, A to C RD-300S

Note

**16** . . . . . . . . . . . . . . . . PIANO 1, PIANO 2, PIANO 3

VIBRAPHONE, E. PIANO 1

10 . . . . . . . . . . . . HARPSICHORD, CLAVI, E. PIANO 2

Tunable Range . . . . . . . . ± 15 cents

**Output Level** . . . . . . . . H : +10dB, M : 0dB, L : -10dB

Power Consumption .... 20W: 100V/117V

25W: 220V/240V

**Dimensions** . . . . . . . . . . 1242 (W) x 461 (D) x 133 (H) mm

 $48-7/8 \times 18-1/8 \times 5-1/4$  in.

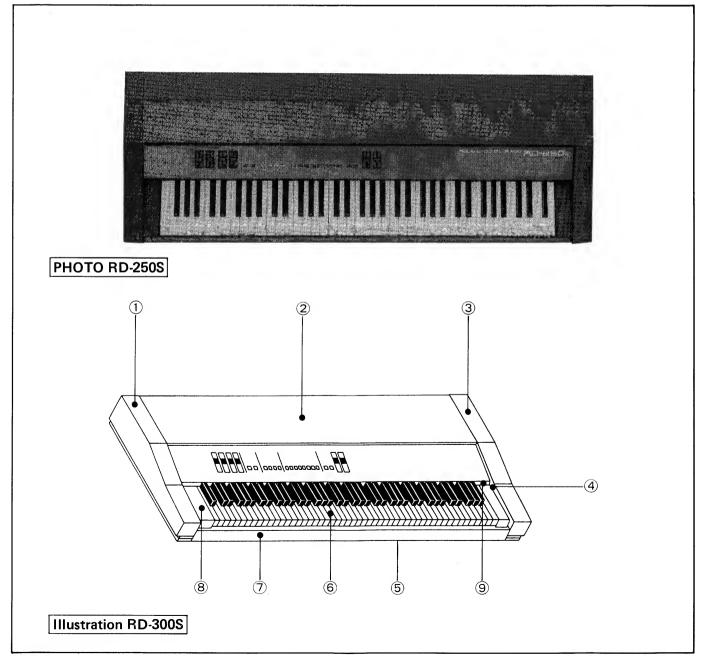
1405 (W) x 461 (D) x 133 (H) mm

55-5/16 x 18-1/8 x 5-1/4 in.

RD-300S

33 kg / 72 lb. 14 oz.

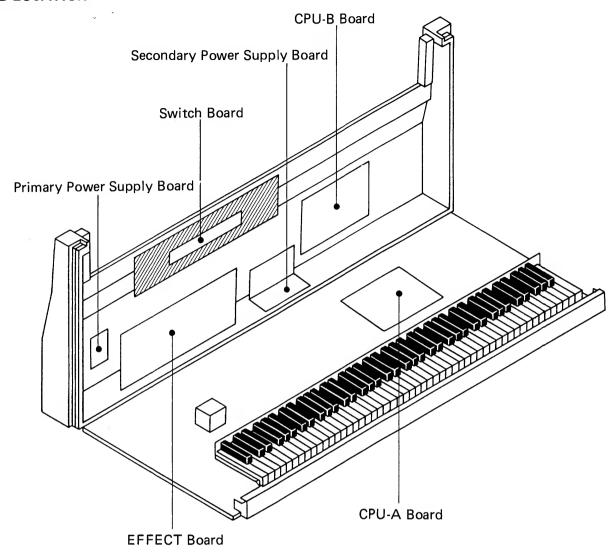
Weight . . . . . . . . . . . . 29 kg / 64 lb. RD-250S RD-300S



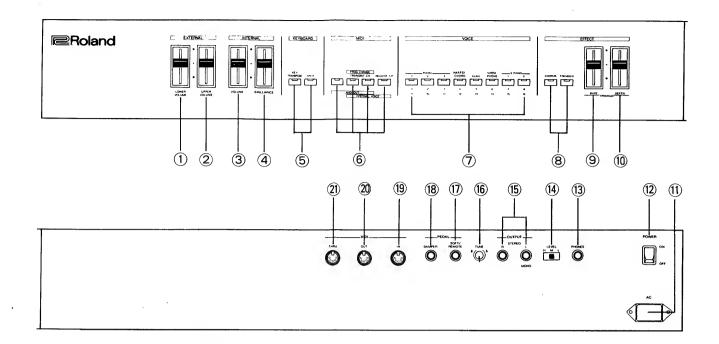


Printed in Japan BA-2LH

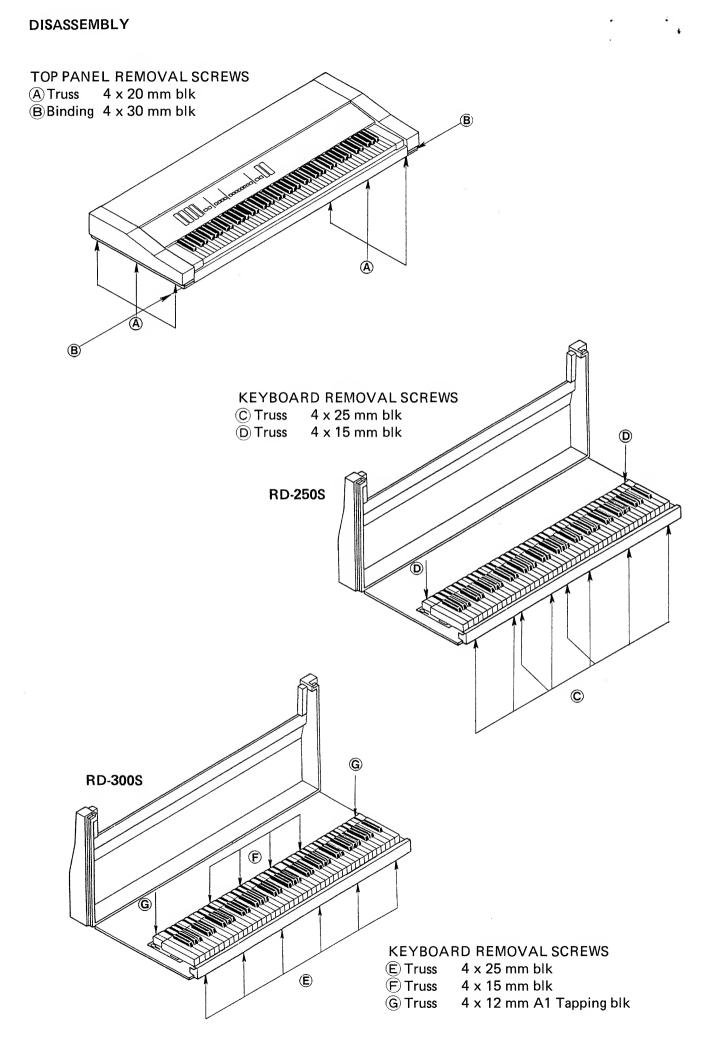
#### PCB LOCATION



No.	Part Number	Part Name Descript	Model	
1	21125277	Side Panel, left	側板 左	common
2	22215570 22215571	Top Panel	トップパネル	RD-250S RD-300S
3	21125278	Side Panel, right	側板 右	common
4	22125238 22125239	Plate, left Plate, right	プレート 左 プレート 右	common
5	21135165 21135166	Base	底板	RD-250S RD-300S
6	7619020000 7619120000	Keyboard Assy SK-676EW SK-688EW	鍵盤完	RD-250S RD-300S
7	21145241 21145242	Blind	口板	RD-250S RD-300S
8	21165130	End Block, left/right	拍子木 右/左	common
9	22265121	Key Felt	キーフェルト	common



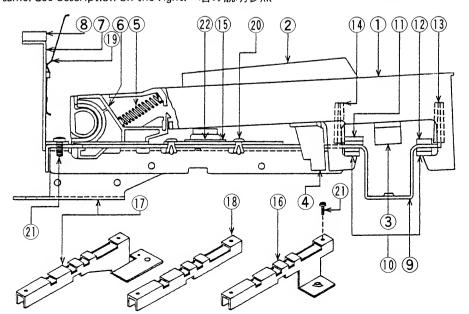
1) 2	Knob Escutcheon Pot.	EWA-NFE-x15B14	1 OKB	22485126 22225320 13339453
3	Knob Escutcheon Pot.	EWA-NAO-x15A14	10KAx2	22485126 22225320 13359356
4	Knob Escutcheon Pot.	EWA-NAO-x15B14	10KBx2	22485126 22225320 13359353
5 7 8	Button Switch	black SKHHPMOO1		22475651 13169668
6	Button Switch	gray SKHHPMOO1		22475652 13169668
9	Knob Escutcheon Pot.	EWA-NFE-x15A15	100кв	22485126 22225320 13339453
(1)	Knob Escutcheon Pot.	EWA-NFE-x15A14	10KA	22485126 22225320 13339454
1	AC Inlet	PA-126 2P 100/117/220V CM-3 3P 240V		13429710 13429708
(12)	Switch	WK2A443A		13149108
(13)	Jack	YKB-21-5010		13449145
<b>(4)</b>	Switch	HSW0372-01-520		13159322
(15)	Jack	YKB-21-5006		13449252
16	Knob Encoder	EVQ-VWKF1531G		22485109 13279291
17 18	Jack	YKB21-5012		13449146
19 20 21	Socket	TCS5350-01-1111 DIN	-	13429615



SK-676-BW 761902000 RD-250S SK-688-EW 7619120000 RD-300S

NO.	PART NO.	PART NAME		RD-250S	RD-300S
	22575202	NATURAL KEY A 白鍵	including:		
	22575203	NATURAL KEY B	WEIGHT(3);		
	22575204	NATURAL KEY C	$SPRING(\overline{5});$		
	22575205	NATURAL KEY D	NATURAL KEY HOLDER (6)		$\cap$
	22575206	NATURAL KEY E	1		·
(1)	22575207	NATURAL KEY F			
	22575208	NATURAL KEY G	=		l
	22575209		-		$\overline{}$
	22575210	NATURAL KEY C'	-		0
<u> </u>	22575231	NATURAL KEY E'	1		
1	22575232	NATURAL KEY G'	1		1
	22575211	SHARP KEY 黒鍵	including: WEIGHT(4);		
(2)		,,,,,,	SPRING(5); SHARP KEY	1	l
			HOLDER(6)	1	
(3)	22565335	NATURAL KEY WEIGHT 白鍵用オモリ		1	ı
(4)	22565253	SHARP KEY WEIGHT 黒鍵用オモリ		1 \( \)	$\sim$ 1
(5)	22175178	KEY SPRING キースプリング			$\circ$
	22195847	NATURAL KEY HOLDER 白鍵用ホルダ		]	i
6	22195848	SHARP KEY HOLDER 黒鍵用ホルダ		1	
(7)	22125578		PANEL ANGLE ASSY A	1	
(8)	22265478	PANEL ANGLE CUSHION Aクッション	22125579	1	
(9)	22815536	CHASSIS 88P シャーシ 88P			
(10)	22265472	FELT STRIP 88P フェルト 88P	T CHASSIS ASSY 88P		
(1)	22265476	FELT STRIP 88P	₹ 22815573		l
(12)					
(13)	22155747	GUIDE BUSHING A ガイドブッシュ /	7		
(14)	22155748	GUIDE BUSHING B ガイドブッシュ E			0
	76183220	PCB 24P ASSY LOW	PCB ASSY	1	
	76183230	PCB 32P ASSY MID	76183210		
(15)	76183240	PCB 32P ASSY HI	including: RUBBER SWITCH		
1			SHEET (22)		
9	22815574	CHASSIS 76P シャーシ 76P			
(0)	22265475	FELT STRIP 76P フェルト 76P	CHASSIS ASSY 76P		
0	22265477	FELT STRIP 76P フェルト 76P	22815572		
(12)					ŀ
13	22155747		7		
(10)	22155748	GUIDE BUSHING B ガイドブッシュ E			
	76188220		PCB ASSY	]	
(13)	76188230	PCB 24P ASSY MID	7618821000		
	76188240	PCB 28P ASSY HI	including: RUBBER SWITCH		ĺ
			SHEET (22)		
(16)					
10	22035133	STAND スタンド		]	
(18)	22125571	ANGLE BRACKET アングル		_	
(19)	22175502	PANEL ANGLE SPRING パネルアングル			0
(20)		NYLON RIVET 3x5.5mm ナイロンリベッ		]	
(21)		TAPPING SCREWS 3x8mm タッピングビ	۲	]	
(22)	22185224	RUBBER SWITCH SHEET		L	

<sup>\*</sup>Not all contacts on the switch sheet キースイッチシート②は、白鍵、黒鍵用で異なります。 are same. See description on the right. 右の説明参照



# SK-6 Rubber Switch Sheet Difference Between Natural and Sharp Contacts — — Height —

With rubber switch 12 PW218—224 for SK-6 keyboard, natural-key and sharp-key contacts are made to different dimensions. See the figures below and note the height of contacts.

When replacing contacts, attach the sheet in place, i.e. match characters with keys. Do not cut the sheet at a point other than V-cut with a groove.

#### NOTE

Replacement SK-6 keyboard and replacement contact PCB are equipped with a complate set of rubber sheets. Sheets are also available as separate replacement.

#### SK-6用キースイッチシート(ゴム) 白鍵接点と黒鍵接点の相違点……高さ……

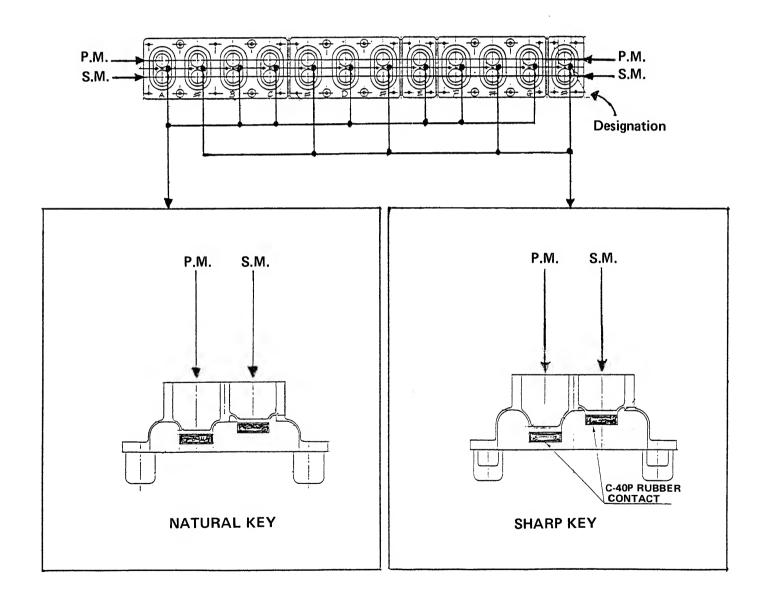
SK-6鍵盤用のゴムシートスイッチ12PW218-224 の白鍵部と黒鍵部は寸法が異なります。下図に示すごとく、接点高さが主要な相違点です。

接点を交換する際はシート上の記号通りに配置し、切離す場合は溝部分で切断して下さい。

#### 注

SK-6 完又はスイッチPCB完にはスイッチシートが取付済です。

ただし、スイッチシート単体でも発注可能です。



## **PARTS LIST**

I ANIO EI			
CABINET +	ャビネット		
21135165	Base		底板 RD-250S
21135166	Base		底板 RD-300S
21145241	Blind		口板 RD-250S
21145242	Blind		口板 RD-300S
22215570	Top Panel		パネル RD-250S
22215571	Top Panel		パネル RD-300S
22125238	Plate le	ft	プレート 左
22125239	Plate ri	ght	
21125277		ft	側板 左
21125278	Side Panel ri	ght	
21165130	End Block	Ü	拍子木
22325130	Hinge		ヒンジ
22265121	Key Felt		キー・フェルト
22225320	Escutcheon		エスカッション
12359105	Rubber Foot		ゴム足
22245447	Slide Pot. Cover		スライド・ボリューム・カバー
2224010200	Switch Mask		スイッチ・マスク LEVEL
22465492	Heat Sink		ヒート・シンク
22195894	Jack Holder		ジャック・ホルダー
22195837	DIN Holder		DIN・ホルダー
22175057	DIN HOLDEL		DIM-WAY
PCB ASSEMB	LY 基板完成品		
7619006000		CPLI	-A基板完 (pcb 22925394) RD-250S
7619106000	CPU-A Board Assy		
7617512000	CPU-B Board Assy		-B基板 完
7617512000	Switch Board Assy		— ··· · · · · · · · · · · · · · · · · ·
7617517000			r//基板 完 (pcb 22925392)
7617514000	Primary Power Sup		
7017504100			//117V (pcb 22925395)
7617504400	一次電源基板		//11/V (pcb 22925395) //240V (pcb 22925395)
7617533100	Cocondony Borron C		· •
7017333100	Secondary Power S		/117V (pcb 22925353) 1/2
7617533400	二次電源基板		//11/V (pcb 22925353) 1/2 //240V (pcb 22925353) 1/2
7017555400		220	7240V (pcb 2232333) 1/2
KNOB, BUTT	ON ツマミ,ボタン		
22485126	Knob ツマミ		VOLUME; BRILLIANCE; TRE.RATE/DEPTH
22485109	Knob ツマミ		TUNE
22475651	Button ボタン 黒 bl	ack	
22475652	Button ボタン 灰 gr		
22175052	baccon ways of gr	u y	
JACK, SOCKI	ET ジャック,ソケット		
13449146	YKB21-5012	mon	o (モノ) DAMPER; SOFT/REMOTE
13449145	YKB21-5010		reo (ステレオ) PHONES
13449252	YKB21-5006		reo (ステレオ・SW付) OUTPUT L/R
13429615	TCS5350-01-1111		socket MID IN/OUT/THRU
			1112 111, 001, 11110
ACINLET A	C インレット		
13429710	PA-126 2P	100	/117/220V
13429708	CM-3 3P	240	
SWITCH スイ	ツ <b>チ</b>		
13149108	WK2A443A		POWER
13169668	SKHHPM001	lig	ht touch Switch Board
13159322	HSW0372-01-520	sli	
13159137	SSSS21067A	sli	
			•

RD-250S/300S NOV. 1987

POWER TRA	NSFORMER 電源トラン	ンス
22455460U0	245-460U0	100/117/220/240V
AC CORD (D	etachable) ACコード(A	说着式 <b>)</b>
13439825	DC-320-J01	100V (Japan)
13439812F0	UC-704-J01	117V
13439813F0	EC-210-J06	220V
23495110	5722-660-4606	240V-E (England)
13439814F0	SC-415-J06	240V-A (Australia)
	HOLDER ヒューズ,ヒュ	
12559400	UL TSC 2A-N1	sec. 100/117V
12559397	UL TSC 800mA-N1	sec. 100/117V
12559514	CEE T2A	sec. 220/240V
12559509	CEE T315mA	sec. 220/240V
12559396	UL TSC 630mA-N1	pri. 100/117V
12559507	CEE T200mA	pri. 220/240V
12199550	Н0446	fuse holder ヒューズ・ホルダー
	ETER ボリューム	
13359356	EWA-NAO-x15A14	10KAx2 VOLUME
13359353		10KBx2 BRILLIANCE
13339455	EWA-NFE-x15B14	10KB EXT LOWER/UPPER VOLUME
13339453	EWA-NFE-x15A15	100KB TREMOLO RATE
13339454	EWA-NFE-x15A14	10KA TREMOLO DEPTH
13299177	RHEOA140XA	10KB Trimmer
TRANSISTOF		
15119134	2SA933S	•
15129153	2SC1740S	
15139123	2SK184	
15119139	DTA144E	w/bias resistor
15129168	DTC124E	w/bias resistor
15139121	2SK117 GR	FET
15119184	2SB1015-0	
15129834	2SD1408-0	
15129152	2SC2878A	
15139124	2SD363	FET
DIODE ダイオ		
15019152T0	1SS176	
15029152	GL-9HD12	LED red
15019290	DBA40C-K15	
15019272	2B4B41-LC2	
15019208	1SR35-200	
15019412	MTZ4.7B	
15019103T0	1S2473	
	RRAY 抵抗アレイ	
13919153M0	RGLD5x103J	10K x 5
13919140	RGLD8x103J	10K x 8
13919311M0	RGLD8x223J	22K x 8
13919316	RGLD4x472J	4.7K x 4
13919113	RGLD4x103J	10K x 4
13919308м0	RGLD6x103J	10K x 6
13919181	RGLD10x153J	15K x 10
13919180	RGLD12x153J	15K x 12
13919142	RGLD8x104J	100K x 8
13919118	RGSD16L104G	ladder resistor

IC		
15179203	HD63803RP	CPU
15229830	MB63H149	gate array CPU-A board IC 10
15179343F0	MB8416A-12-SK-G	2Kx8 bit static RAM
15179815	TMM2764D-815 ROM A	
15179794	TMM2764D-794 ROM B	
15179834	M5M2364-316P ROM C	
15179810	TC531000P-7465	1Kx8 bit MASK ROM WAVE AO
or		CPU-B board IC 7
15179810F0	MB831000-20P-G-471	
15179811	TC531000P-7466	1Kx8 bit MASK ROM WAVE BO
or		CPU-B board IC 6
15179811F0	MB831000-20P-G-472	
15179812	TC531000P-7467	1K-8 bit MASK ROM WAVE CO
or		CPU-B board IC 5
15179812F0	MB831000-20P-G-473	
15179838		1Kx8 bit MASK ROM CPU-B board IC 18
15159503	TC40H000P	quad 2 input NAND gate
15159505	TC40H004P	hex inverter
15159514	TC40H032P	quad 2 input OR gate
15159506	TC40H138P	2 to 8 line decoder/demultiplexer
15159511	TC40H174P	hex D type flip-flop
15159530	TC40H367P	hex bus buffer
15159508	TC40H373P	octal D type latch (3 state output)
15159531	TC40H374P	octal D type flip-flop
1-1-0-10		(3 state output)
15159519	TC40H157P	quad 2 to 1 line selector/multiplexer
15169359X0	SN74LS541N	octal buffers and line drivers
15100150	70.40000	(3 state output)
15189158	μ <b>PC-4082C</b>	operational amplifier
15189111J1	NJM-311D	operational amplifier
15189189	μ <b>PC4570HA</b>	operational amplifier
15189148	NJM072S	operational amplifier
15189190	M5216L	operational amplifier
15159115T0	TC4066BP	quadruple bilatch switch
15199106NH	μ <b>PC7805</b> Η	+5 voltage regulator
15199117	M5230L	voltage regulator
15169334Н0	HD74LS05	hex inverter with open collector
1 = 1 = 0 2 0 2 m 0	mo/FO/DD	output
15159303T0	TC4584BP	hex schmitt trigger
15219163	NE572	programmable analog compander
15219179	M5206P	dual voltage controlled amplifier
15219205	MN3007	1024-stage BBD
15169504	MN3101	BBD driver
15229706S0	PC-910	Optoisolator
15229837	MB60VH142PF-G-B	gate array R06-001 gate array R06-002
15229838	MB60V141PF-G-B	8
15229839	MB61V125PF-G	gate array R06-003
15179734	MB7138H	bipolar plain output PROM
15219162	PCM54HP	16 bit D/A converter
15169301H0	HD74LS00P	quadruple 2-input positive NAND gate
15219174	NJU201AD	quad spst analog switch

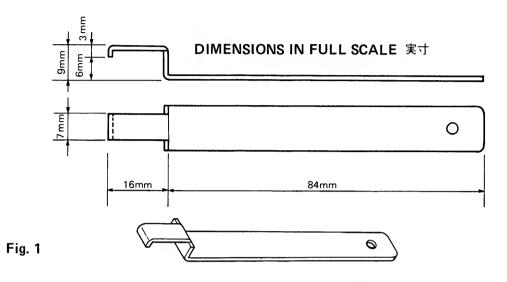
CAPACITOR	ARRAY コンデンサ・アレ	1				
13529118	B5RC0139-32N	22Px4				
13529113	B7ZC0724-32N	22Px6				
13529115	EXFP8101MN					
CRYSTAL 3	<b>卷振子</b>					
12389747	HC-49/U	16MHz				
12389751	HC-49/U	12.8MHz				
COLLAR/BU	SHING カラー/ブッシュ	Ì				
12159715	TB-300	male	オス			
12159713	TA-305P	female	メス			
12159733	TA-310	female	メス			
CAPACITOR	コンデンサ					
13659201	ECET16R682SW	6800μF/1	6V			
13659222M0	ECET35R222SW	2200 PF/3	5V			
13529104	DE7150F472MVAI	$0.0047 \mu F$		ラインバイパス	line	bypass
ROTARY EN	CODER ロータリーエンコ	コーダ				
13279291	EVQ-WVKF1531G	TUNE				
KEYBOARD	ASSY 鍵盤					
7619020000	SK-676-BW					RD-250S
7619120000	SK-688-BW					RD-300S
MISCELLAN	EOUS その他					
22445240	Ferrite Bead	BLO2RN2-	R62	フェライト・ビース	·.`	
12449269	Low-pass Filter	0538-014		ローパス・フィル	ター	

5

Consult your local Roland service center for availability. If not available, make a lever following the instructions described below.

#### SK-6 取外しレバー

SK-6の鍵盤からキーを取外すにはFig.1に示す様なレバーが必要です。入手に関してはローランドのサービスセンタへお問合せ下さい。



#### SUBSTITUTIVE LEVER

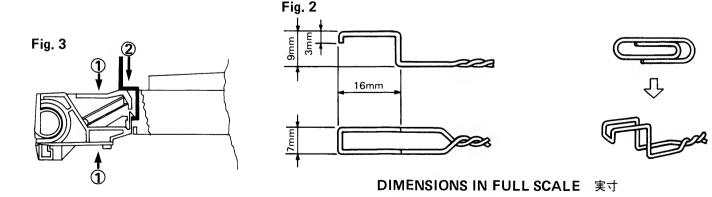
- 1. Prepare a length of wire (more than 95mm or 3.8 in.). A paper clip is a most typical one.
- 2. (If a coiled wire as example of a paper clip.)
  Uncoil and straigten the wire.
- 3. Reshape the wire to Fig. 2, with the dimensions exactly matching the values given in the figure.
- 4. Prepare a separate key (may be a replacement to be used, natural or black.).
- 5. Grasp key and key holder at ① in Fig. 3 with thumb and forefinger to allow the holder goes to the bottom. Retain tension on holder at this point. And insert the key removal lever into key to hook the latch lock. ② in Fig. 3.
- 6. Release key holder. When the holder remains locked,

  ② , the lever you made now passes the acceptance test, and ready to work on the keyboard.

#### レバーの作製手順

取外しレバーが無い場合は下記要領で作製して下さい。

- 1. 針金(ゼムクリップ等、長さは95mm以上)を準備する。
- 2. この針金を Fig. 2 のサイズに合わせて折り曲げる。
- 3. 補修用のキー(白鍵もしくは黒鍵)1個を用意する。
- 4. Fig.3 の①の部分をつかみキーホルダを押え込む。この状態で針金の先端がキーホルダのツメに引っかける様にキー上部から挿入する②。キーホルダから手を離す。 Fig.3 の様にキーホルダがロックされた状態なら O Kです。



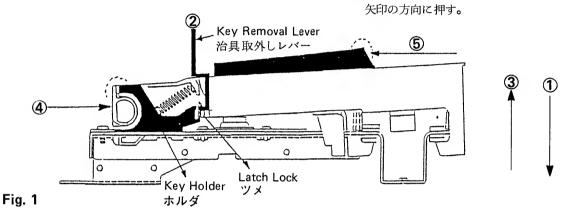
#### SK-6 KEY REMOVAL Natural Key (Fig. 1)

**RD-250S/300S** 

- 1. Depress and hold the key at the front end ① and then insert key removal lever ② so that its tip goes below the latch lock. Leave the lever in this state.
- 2. While lifting up the key front with one hand ③, press the rear end of the key to more the key toward front of the unit.④.

#### Black Key

- 1. Follow step in 1 above.
- 2. Lift key at front 3 and then move it toward the rear of the unit 5.



#### SK-6 KEY REASSEMBLY

\* Mounting a key does not require the key removal lever.

#### Natural Key/Black Key (Fig. 2)

- Finger-pinch the key and key holder at ①. Press and release the button on the holder and verify the smooth operation. Pressing the holder to the bottom makes a mechanical noise. This will not occur once installed on the keyboard whose mechanism prevents extensive key swing. Refer to "Hints On Key Mounting", as necessary.
- 2. Engage the forward hook on the key in the key chassis bracket ② .
- 3a. Natural Key

Depress the key on the rear and move it toward the rear of the unit untill key holder tip engages chassis notch.. (3).

3b. Black Key

Depress the key on the rear and move it toward the front of the unit untill the blade on the key engages chassis notch. (4).

4. Check the key for noise and dragging. For corrective adjustment, if necessary, refer to "Hints On Key Mounting".

#### SK-6 キー取付け方(Fig.2)

SK-6 キー取外し方(Fig.1)

矢印方向に押す。

1. (取外す)キーを押しながら"鍵盤取外し治具"をキ

2. キーの前部を持ち上げながら③、キーの後端を④ の

1. 白鍵"1"と同様に治具を挿入し、治具から手を離す。

2. キーの前部を持ち上げ、この状態で図⑤の点線部分を

ーホルダのツメに引っかける様に插入する②。

白鍵

黒鍵

\*取付け時には、治具を必要としません。

#### 白鍵.黒鍵

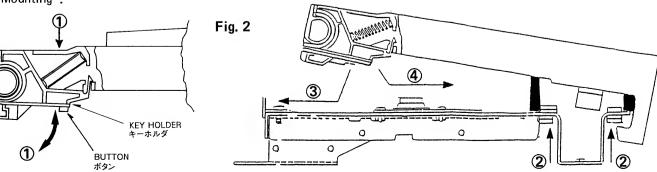
- 1. キーの①の部分をつかみ、下部のホルダーを数回出し入れして異音の有無と動きのスムースさをチェックする。強く押すとホルダーの当たる音がするが、実際に鍵盤に取付けた場合は生じない。異常のある場合は"キー交換上のヒント"参照。
- 2. キーの前端を②の様にガイドに当てる。
- 3a. 白鍵

キーの後端を下へ押しつけながら③の方向にスライドさせる。

3b. 黒鍵

キーの後端を下へ押しつけながら④の方向にスライドさせる。

4. 異音が出たり、タッチが重すぎる場合は"キー交換上のヒント"参照。



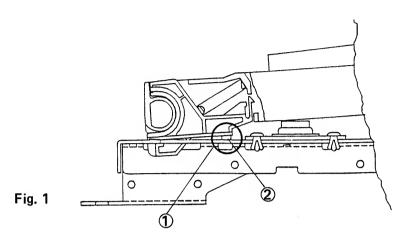
NOV. 1987

#### Hints On Key Mounting Key Noise (Figs. 1 and 2)

1. There is a possibility that a virgin key makes a noise as it is played. This is because the rough button ② on the key cannot fit into chassis hole, leaving clearance ① between key bottom and chassis smooth away button outer surface.

#### キー交換上のヒント ◎キー異音が場合(Fig.1,2)

この原因となるのは、ホルダとシャーシ間に隙間①があるためです。キーが新しい場合はキーホルダの②の部分になじみが無いためで、2、3回シャーシの穴に抜き差しするとスムーズに入ります。



2. The spring, having been not properly inserted onto protrusion(s) ①, ② on the key holder, may make a noise or cause disturbed key stroke. To check the spring first remove the key, then open the key holder . . . grasp holder around the button and pull straight. To reinsert the spring, first slip spring end onto protrusion ① . Leave the spring as it rests against holder by its gravity. Align spring end with protrusion ② and close the holder.

2. 下図の凸部①,②にスプリングがきっちりはまっていないと異音、スプリング重さの原因となります。

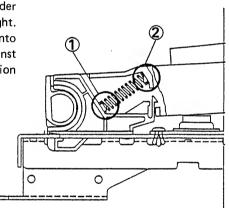


Fig. 2

#### Dragging Key (Fig. 3)

A torque grease is applied to portion ①.

Wipping off a coat of grease makes key touch lighter.

NOTE: A different kind of grease is used on portions②.

#### ◎キーが比較的重い場合(Fig.3)

下図①にはトルクグリスが使用されています。 これを少し拭きとるとキータッチが軽くなります。 (参考:なお、②にもグリスが使用されていますが、これ は種類が異なります。)

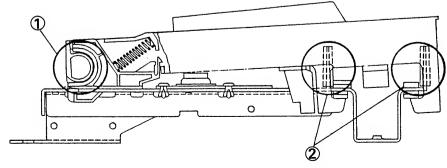
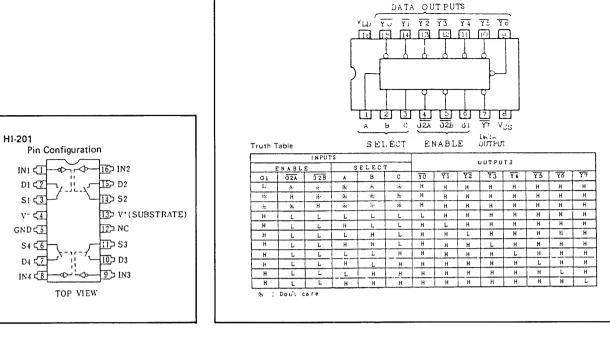


Fig. 3

① . . . . Torque grease トルクグリス (G-424F type) ② . . . . Machine grease 機構グリス (G-336A type)

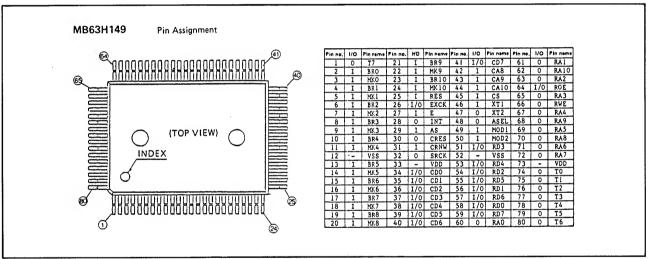
### IC DATA

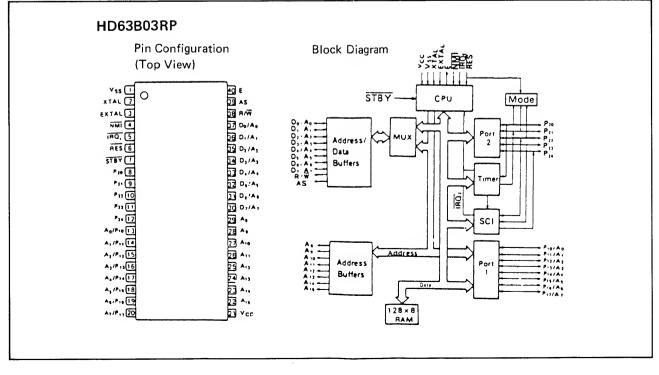


TC40H138P 3-TO-8-LINE DECODER/DEMULTIPLEXER

Pin Configuration

Top View



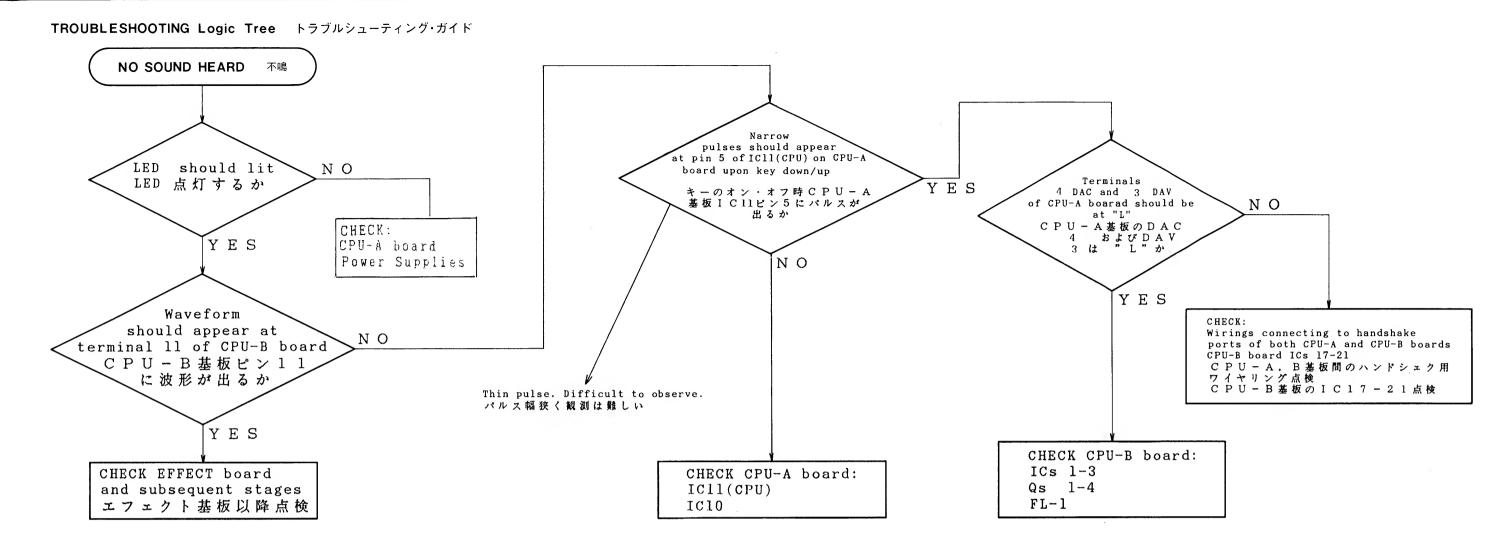


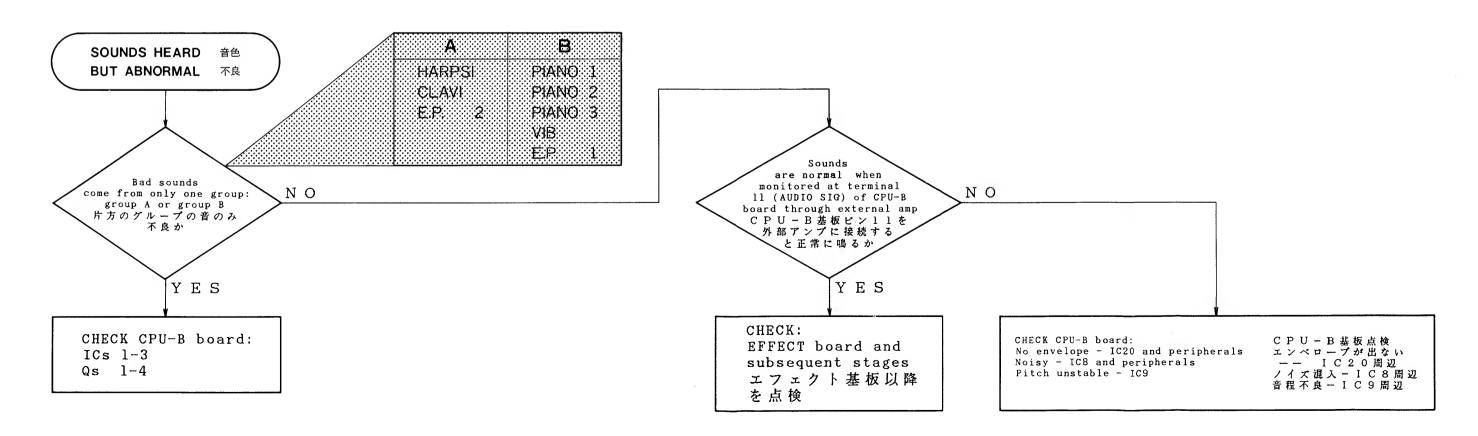
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 **BLOCK DIAGRAM** CPU-A BOARD KEYBOARD POWER TRANSFORMER SK676-BW CPU-B SECONDARY PRIMARY AC INLET 76 keys POWER POWER RD-250S BOARD SUPPLY SUPPLY SK688-EW BOARD BOARD 88 keys KEY CPU POWER SW RD-300S SCAN ICII IC IO RE-SET ADDRESS DECODER IC2 - 4 ADDRESS ROM LATCH IC | 5 Q1,2 AUDIO SIGNAL RAM AD CONVERTER LATCH BUFFER LATCH IC 9 IC7, IC12 - 14 IC5 IC 8 IC6 PHONES (MONO) EFFECT BOARD **⋄** OUTPUT 013 PHONES AMP IC 6 🖔 IC17 ICIO IC12 IC13 OUTPUT COMP. BBD EXPAND 012 LEVEL VCA IC5 IC7,8 IC5 SWI MUTING \$\bar{\partial}{20} TUNE IC4 Q14-18 LFO IC16 REMOTE IC 15 IC9 DAMPER SWITCH BOARD IC2 LFO EQ OPT SWITCH LED IC5,6 IC2,3 ISOLATOR IC4 BRILLI OUT MIDI MUTE -ANCE VOLUME RATE DEPTH Q1-3 ICI TREMOLO THRU -ΕQ IC2,3 EXTERNAL

VOLUME ICI

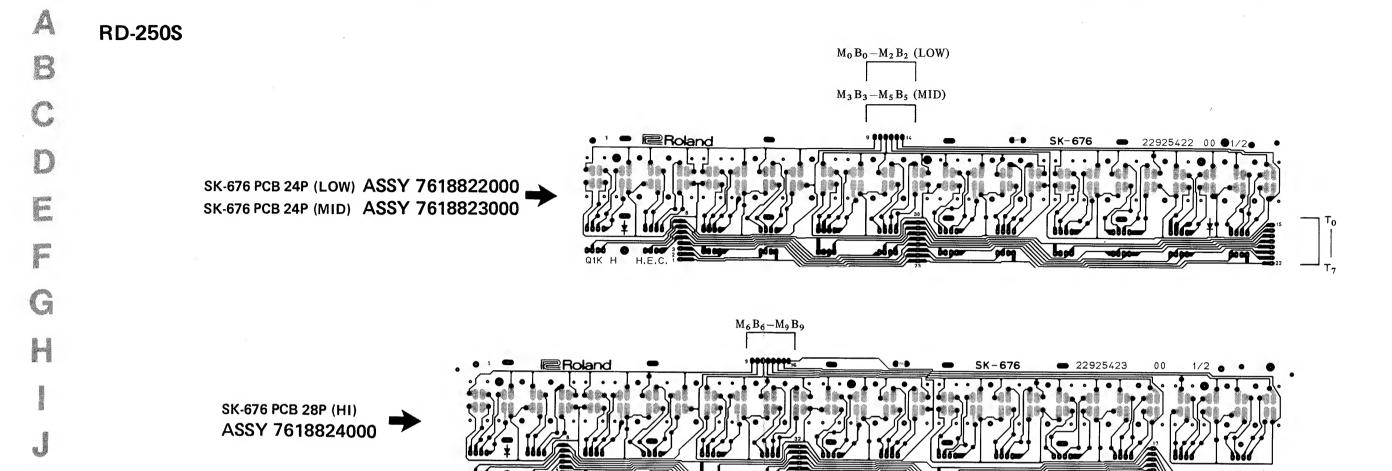
UPPER LOWER

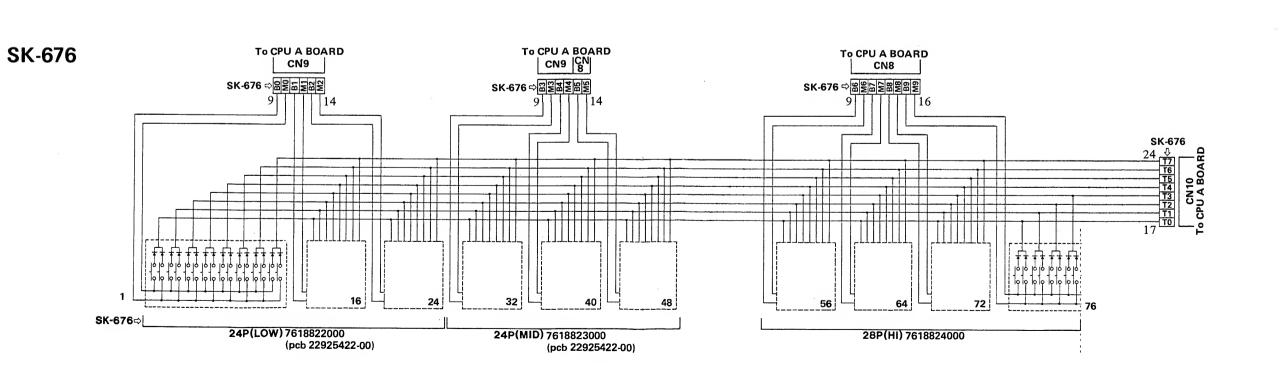
**BLOCK DIAGRAM** 





1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39





9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37  $M_0 B_0 - M_2 B_2$ **RD-300S** SK-688 PCB 24P (LOW) **ASSY 7618322000**  $M_3B_3-M_6B_6$ SK-688 PCB 32P (MID) ASSY 7618323000  $M_7B_7 - M_{10}B_{10}$ SK-688 PCB 32P (HI) ASSY 7618324000 To CPU A BOARD CN9 CN8 **SK-688** To CPU A BOARD To CPU A BOARD CN9 CN8 SK-688 ⇔ 889-38 SK-688 24/88 56/88 88/88 SK-688⇔L

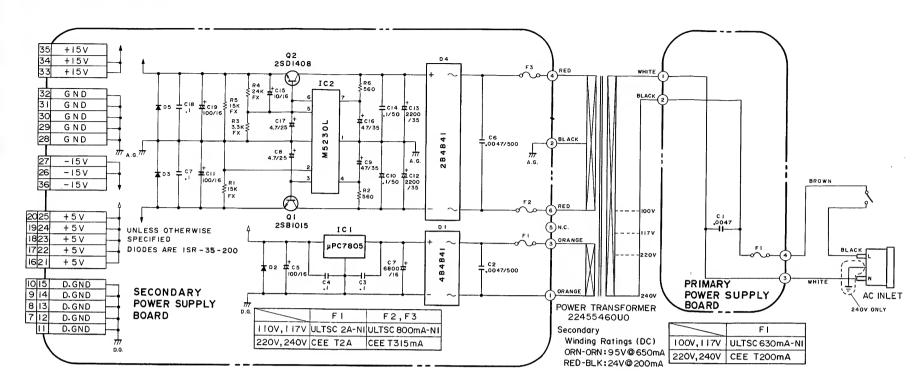
32P(HI) 7618324000

32P(MID) 7618323000

24P(LOW) 7618322000

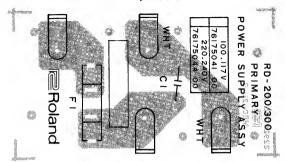
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

#### **CIRCUIT DIAGRAM**



### PRIMARY POWER SUPPLY BOARD

7617504100 100/117V 7617504400 220/240V



#### Common PCB

Secondary Power Supply Board finds application on many models. The table below is provided as a guide when need arises to substitute one PCB for another.

#### 共通基板

二次電源基板は下表のごとく多くの機種に共通。 流用の際の参考として共通点及び相違点を示してあります。

#### Secondary Power Supply Board **Replacement Consideration**

#### 1. Heat Sink

Do not remove the heat sink on the top panel. Instead, remove the one on the replacement PCB. Reinstallment of the heat sink on the panel is difficult to achieve by one person.

#### 2. Substitutive

As can be seen from the table below, secondary power supply boards listed are easily interchangeable with each other with minor modifications.

When substituting, use in-system components, as required.

When ordering, specify the line voltage to be operated from to get the correct PCB.

#### 2次電源基板 交換上の注意 1. ヒートシンク

トップパネルに取り付けられているヒートシンクは絶対に はずさないこと。再取り付が非常に困難です。交換用基 板のヒートシンクをはずして下さい。

## SECONDARY POWER SUPPLY BOARD

7617533100 100/117V 7617533400 220/240V (pcb 22925353)

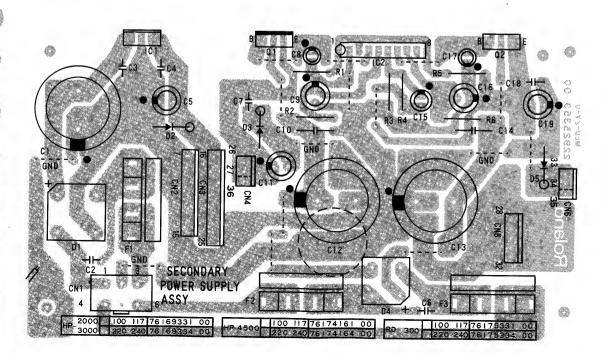
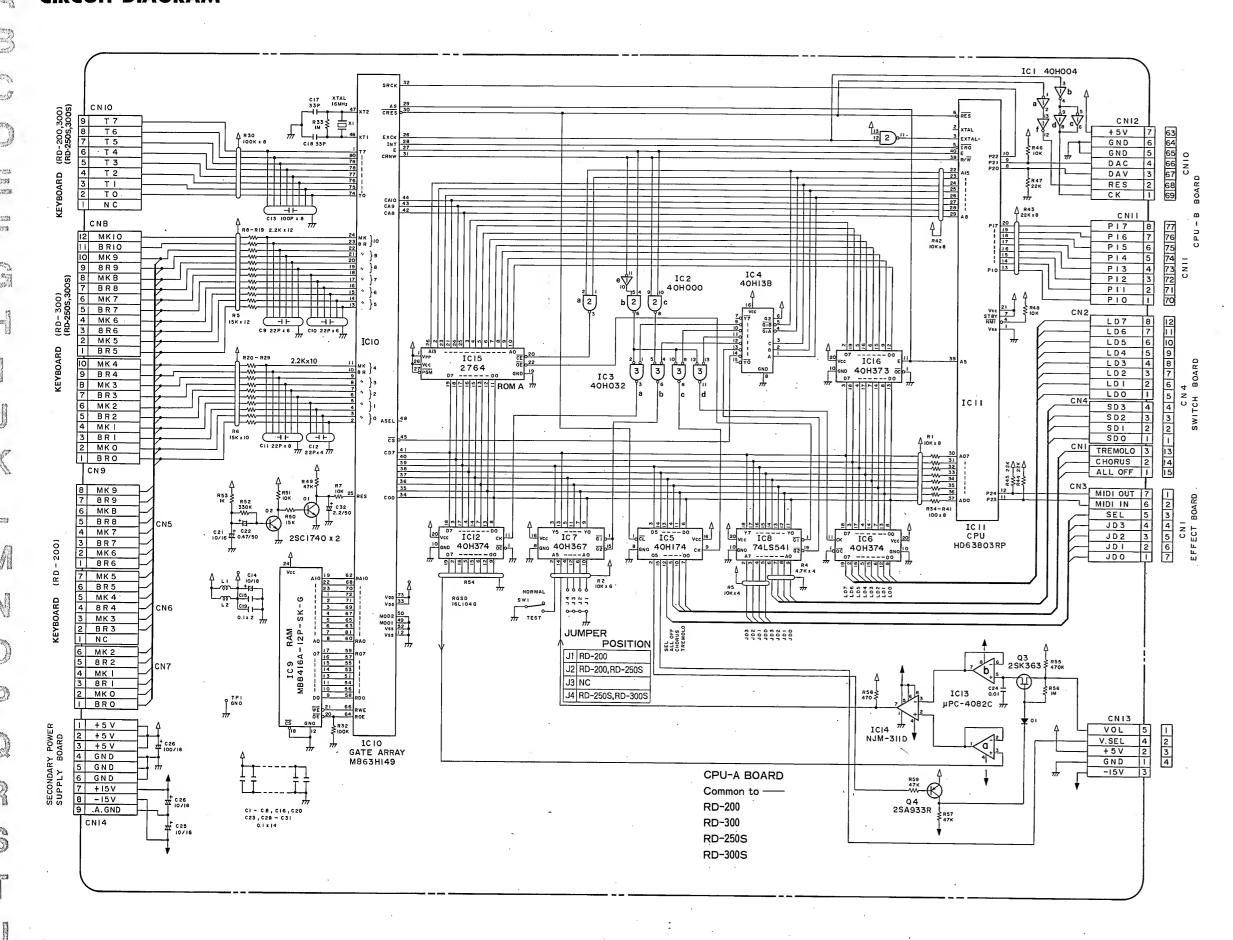


Table1

= Common MODEL **VOLTAGE** FI **HEAT SINK WIRING** ASSY No. F2, F3 ULTSC 2A-N1 | ULTSC 800mA-N1 **FUSE** 100/117V 7617709100 LABEL H224 2.0A125V H220 T800mA/125V **RD-200 FUSE** CEE T2A CEE T315mA 220/240V 7617709400 LABEL #408 T2A/250V #400 T315mA/250V **FUSE** ULTSC 2A-N1 | ULTSC 800mA-N1 100/117V **RD-250S** 7617533100 LABEL H224 2.0A125V H200 T800mA/125V RD-300 **FUSE** CEE T2A CEE T315mA 220/240V **RD-300S** 7617533400 LABEL #408 T2A/250V # 400 T315mA/250V **FUSE** ULTSC 2A-N1 ULTSC 1.25A-N1 HP-2000 100/117V 7616933100 LABEL H224 2.0A125V H222 1.25A125V HP-3000 **FUSE** CEE T2A CEE T500mA 220/240V 7616933400 HP-3000S LABEL #408 T2A/250V #402 T500mA/250V **FUSE** ULTSC 2A-N1 ULTSC 1.25A-N1 100/117V 7617416100 HP-4500 LABEL | H224 2.0A125V H222 1.25A125V HP-4500S **FUSE** CEE T2A CEE T500mA 220/240V 7617416400 LABEL #408 T2A/250V #402 T500mA/250V

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

## CIRCUIT DIAGRAM

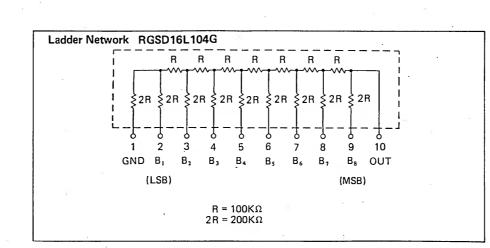


CPU-A BOARD Assy 7619006000 RD-250S Assy 7619106000 RD-300S (pcb 22925394)

sequently, some legends on the PCB differ from those mounted. CPU-A基板は複数の機種に使用されているので、一部の表示は実装品と

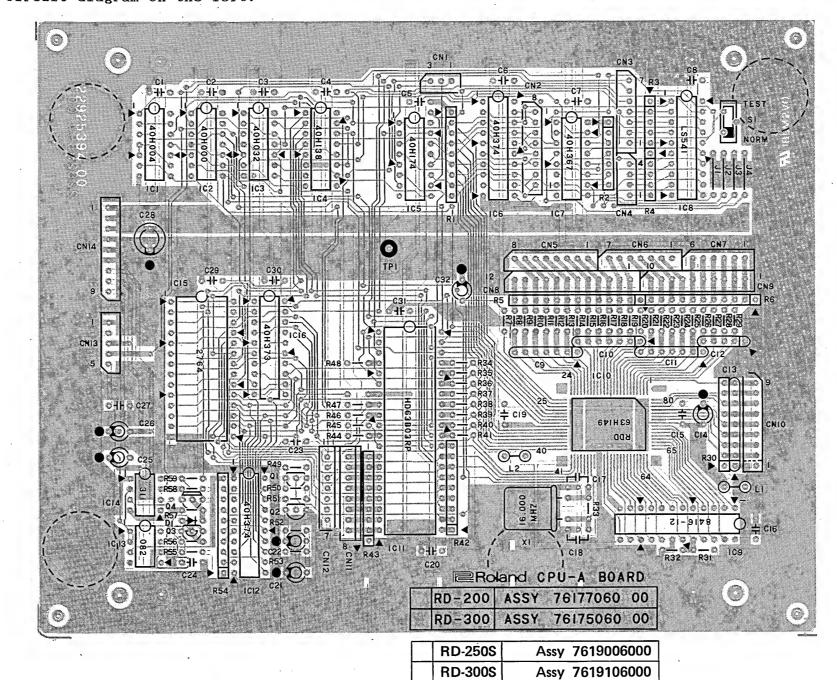
Difference Between Two CPU-A Boards - RD-250S and RD-300S -

JUMPER POSITION only See circuit diagram on the left.



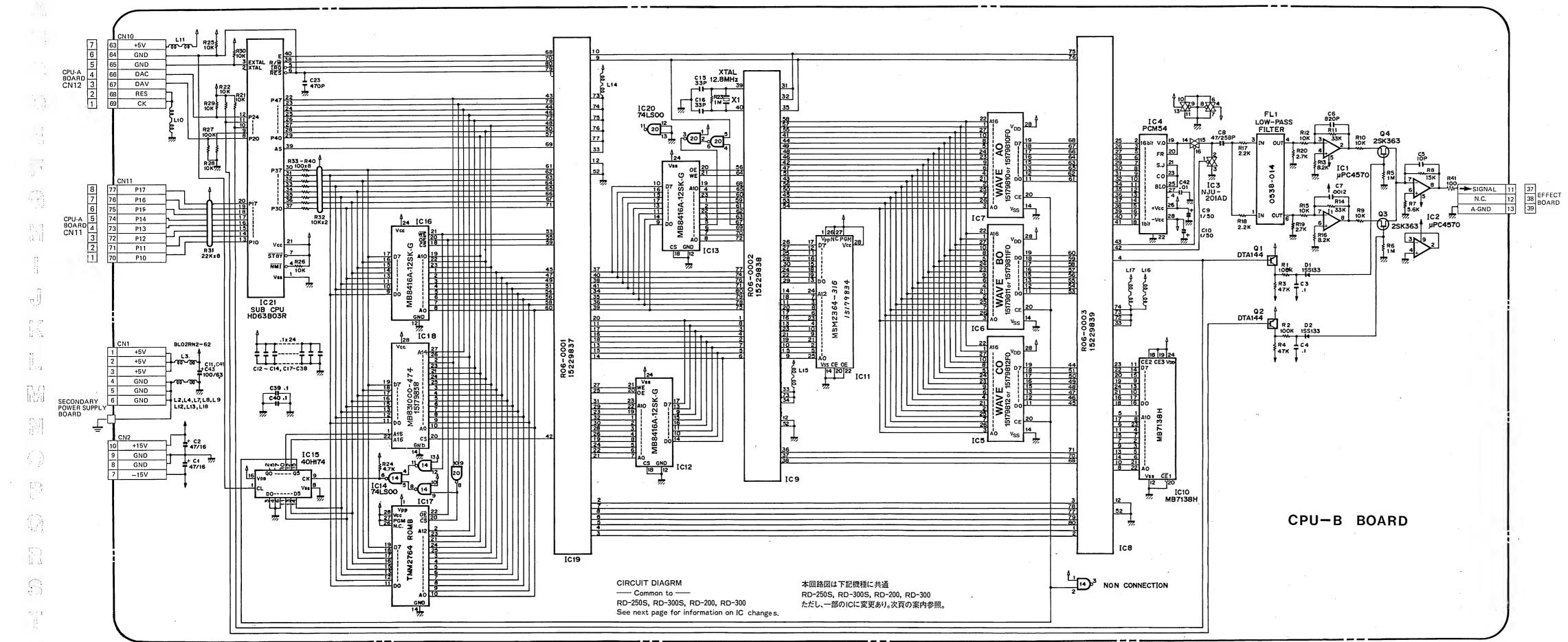
CPU-A 基板

RD-250S,RD-300S間の相違点はジャンパー位置のみ、回路図参照



RD-250S/300S

## **CIRCUIT DIAGRAM**



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

#### 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39

TC531000P-7465

MB831000-20P-G-471

(上下のICは互換性あり)

(15179810)

(15179810F0)

IC7

#### **CPU-B BOARD**

7617512000 (pcb 22925348)

CPU-B board artwork is commonly used for many models. Consequently, some legends on the PCB differ from those ICs mounted, as shown below.

As an assembly, CPU-B board 7617512000 is common to RD-200, 300, 250S and 300S except for IC18 on some RD-200 and RD-300. MB831000-20P-G-474 is compatible with TC531000P-7465 and provides better quality sound.

TC531000P-7466

MB831000-20P-G-472

(15179811)

(15179811F0)

IC6

TC531000P-7467

MB831000-20P-G-473

("or" refers to compatible)

(15179812)

(15179812F0)

IC5

RD-250S

RD-300S

RD-200

RD-300

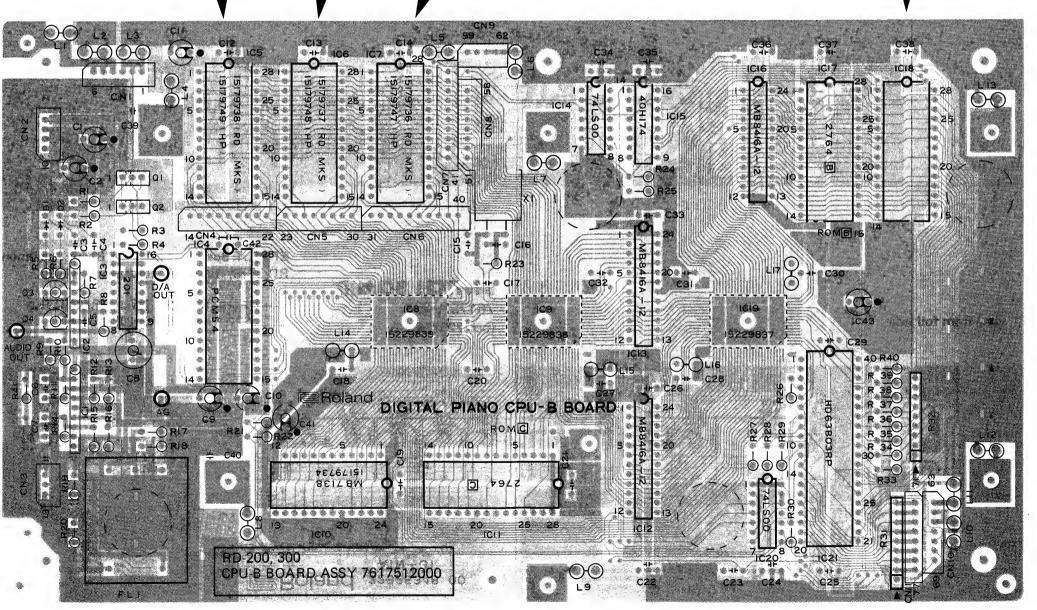
CPU-B基板は複数の機種に使用されているので、一部ICの表示は実装品と 異なる。

RD-200/300/250S/300SのCPU-B基板は基板完成品としても共通。 ただし、RD-200/300のIC18 TC531000P-7465は、改良前の音色データ入り(互換性有)。

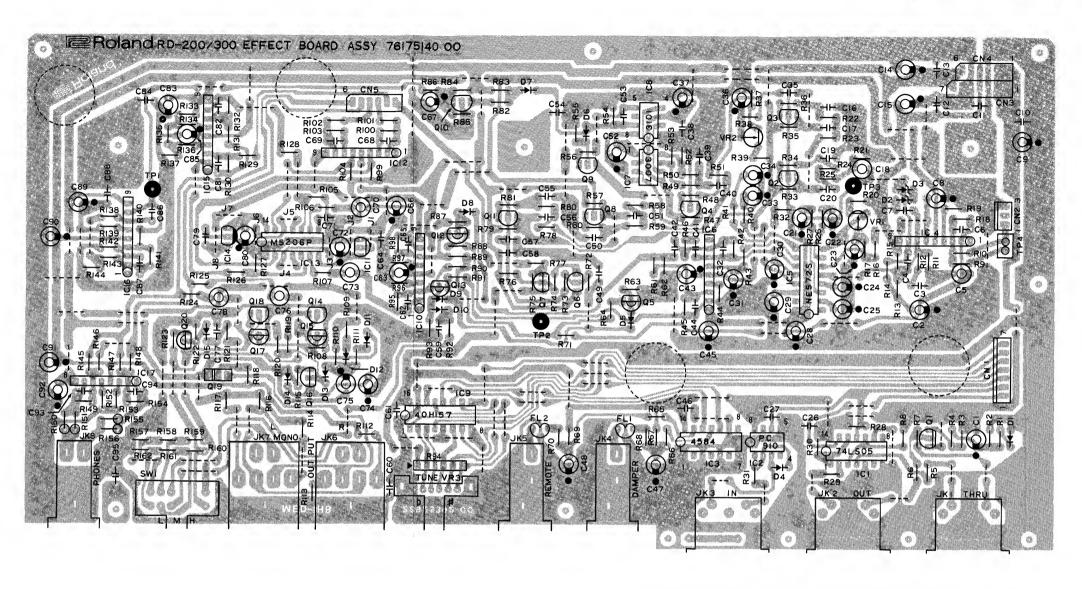
> RD-250S RD-300S MB831000-20P-G-474 (15179838)

RD-200 RD-300 Same as left or TC531000P-7465 (15179810)

(SOUND ROM)
IC18



**EFFECT BOARD** 7617514000 (pcb 22925392)



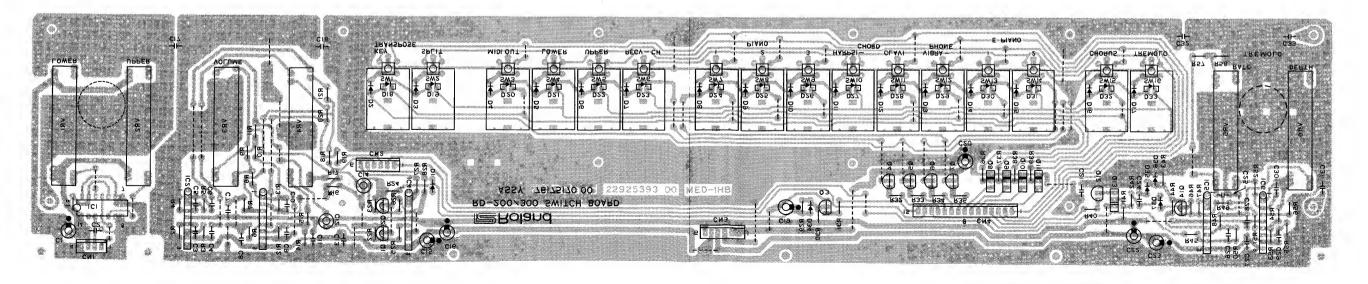
view from foil side

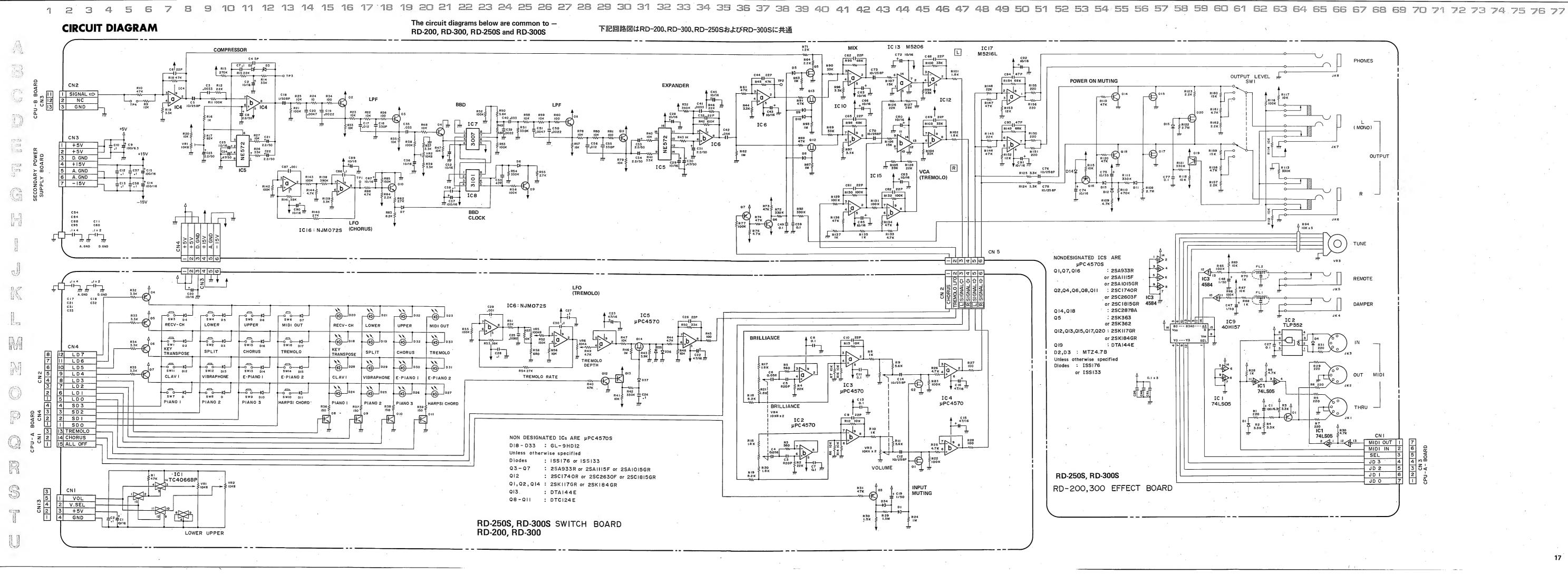
**SWITCH BOARD** 

7**617517000** (pcb 22925393)

EFFECT Board and SWITCH Board : common to RD-250S, RD-300S, RD-200 and RD-300

スイッチ基板、エフェクト基板は下記機種に共通 RD-250S、RD-300S、RD-200、RD-300





## **ADJUSTMENT**

**TEST MODE** 

- 1. COMPRESSOR -Effect Board-1-1. Connect an oscilloscope (scope) to TP-3. Set scope to 0.2V/div, 50ms/div with AC coupling input
- 1-2. Press TREMOLO. 1-3. Adjust VR1 for drift-free waveform as shown in the
- figure below.

#### テストモード

調整する。

調整

RD-250S, RD-300S MIDI Implementation Chart Date: Aug. 20, 1986 Version: 1.0

1. コンプレッサ ― エフェクト基板		RD-200, RD	-300	
1-1. TP-3にシンクロスコープを接続する。 (0.2 V/div, 50 m S/div, A C)	·	Function	Transmitted	
1-2.TREMOLOを押す。	Basic	Default	1,2	

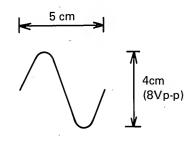
Digital piano

		3cm (0.6Vp-p)	
×	0	×	

- 2. BBD BIAS -Effect Board-2-1. Press CHORUS, 2-2. Connect scope to TP-2. Set scope to 0.2V/div,
- 0.2ms/div with DC coupling. 2-3. Short the two pins on TP-4.
- 2-4. Adjust VR2 for a maximum amplitude. 2-5. Turn the power off to exit the test mode. 2-6. Open TP-4 pins.
- 2. BBDバイアス エフェクト基板 2-1. CHORUSを抑す。 TP-2にシンクロスコープを接続する。 2-2. (0.2 V/div, 0.2 m S/div, D C) 2-3. T P-4のピンをショートする。 2-4.波形の振幅が最大になるようにVR-2

を調整する。

1-3.波形が下図の様になるようにVR-1を



	Function	Transmitted	Recognized.	Remarks
Basic Channel	Default Changed	1,2 1–16	1 1–16	
Mode	Default Messages Altered	3 POLY,OMNI OFF *******	1 POLY, OMNI ON/OFF MONO(M $\neq$ 1) $\rightarrow$ 1, (M=1)-	→3
Note Number	True voice	15-113(RD-300),22-108(RD-200) *******	0–127 15–113	
Velocity	Note ON Note OFF	○ × (9n v=0)	O ×	v=1-127
After Touch	Key's Ch's	×	× ×	
Pitch Bender		×	×	
Control Change	7 64 66 67 92 93	0 0 0 0 0 0	× 0 0 0 0	Volume Hold 1 Sostenuto Soft pedal Tremolo Chorus
Prog	*	○ (0-127)		ignored by
Change	True #	******		up setting .
System Exclu System	Song Pos	×	×	
Common	Song Sel Tune	×	× ×	
Common System Real Time			X	
System Real Time Aux Lo All Mes- Ac	Tune	×	× ×	

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO O: Yes Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO X: No Digital piano

MODEL	RD-250S, RD-300S	MIDI	Implementation	
VIODEL	RD-200, RD-300		implomortation	

\*| Note numbers outside of the range 15 - 113 are transposed to the nearest octave inside this range. The Key Transpose operation from the panel does not affect MIDI IN NOTE numbers

Date: Aug. 20, 1986

RD-250S/300S

NOV. 1987

Version: 1.0 \*2 If the power has been applied with the PIANO 1 switch being held down, this message is ignored. KEY TRANSPOSE TRANSMITTED DATA PROGRAM CHANGE IN RECEIVING \*3 Refer to 8. PROGRAM CHANGE IN RECEIVING. When the power is first applied, transpose value is 0. The following chart shows the relationship between key positions and transposed values. (Set when a key is pressed while the KEY TRANSPOSE switch is being held down.) If the power has been applied with the PIANO 1 switch being held down, this message is ignored. \*1 When the ALL NOTES OFF is recognized, all MIDI-on notes are turned OFF. However, if the damper pedal is being pressed, these ON notes will not be turned OFF until the damper pedal is released. Similarly, if the MIDI Hold1 ON message has been received, the notes will not be turned off until the Hold1 OFF message is received. vvvvvv = 1 - 127 \*5 These Mode Messages (2nd byte = 123 - 127) are also recognized as the ALL NOTES OFF. 1011 nnnn 0000 0111 0vvv vvvv Voiume vvvvvvv = 0 - 127 Mode Messages are recognized as follows POLY ON (127); MONO ON (126); MONO ON (126); mmmm = 1; mmmm <> 1 OMNI OFF (124) OMNI = OFF OMNI = OFF OMNI = ON POLY POLY PIANO 1 PIANO 2 PIANO 3 HARPSICHORD CLAVI VIBRAPHONE E.PIANO 1 E.PIANO 2 TREMOLO, CHORUS IN TRANSMITTING BASIC CHANNEL IN TRANSMITTING When the CHORUS (TREMOLO) switch is pressed while the Lower (or Upper) PROGRAM CHANGE switch is being held down, the CHORUS (TREMOLO) ON or OFF message is sent.

If the power has been applied with the MIDI OUT switch being held down, pressing CHORUS (TREMOLO) switch sends CHORUS (TREMOLO) ON or OFF message, whichever appropriate. 1100 nnnn Oppp pppp When the power is first applied, the Lower Basic Channel is normally set to 2, and Upper Basic Channel is normally set to 1. ALL NOTES OFF OMNI OFF POLY ON However, the Basic Channel may be changed when the following key on the keyboard is pressed while the Lower (or Upper) PROGRAM CHANGE switch being held down. Lower and Upper can not be set at same channel. 1111 1110 Active Sensing PROGRAM CHANGE IN TRANSMITTING The following table shows the GROUP, BANK and NUMBER values related with key position which is set while the Lower(or Upper) PROGRAM CHANGE switch being held down. s: nnnn: MIDI Channel number ( 0000 - 1111 ), ch-1 = 0000 The Basic Transmit Channel can be changed by panel operation. Refer to 3. BASIC CHANNEL 1N TRANSMITTING. Related value The assignment of received Program Change messages can be set at another mode that is set if the power is applied while the MIDI OUT switch being held down. In this mode assignment does not affect the TREMOLO and CHORUS.

The assignment of received Program Change messages are as follows. The program numbers 8 - 127 are ignored. \*1 The range can be changed by panel operation. Refer to 5. KEY TRANSPOSE. \*2 If the power has been applied with the Soft pedal being Prog # Voice PIANO 1
PIANO 2
PIANO 3
HARPSICHORD
CLAVI
VIBRAPHONE
E.PIANO 1
E.PIANO 2 \*3 Refer to 6. TREMOLO, CHORUS IN TRANSMITTING. \*4 Refer to 7. PROGRAM CHANGE IN TRANSMITTING. When Lower(or Upper) Basic Channel is changed, following message are transmitted. In the previous Basic Channel \*6 When the power is first applied, following messages are a. Hold! OFF (If Damper pedal is trodden.)
b. Sostenuto OFF (If Sostenuto pedal is trodden.)
c. Soft OFF (If Soft pedal is trodden.)
When set to MIDI OUT OFF by panel operation, these
messages are not sent. transmitted.

a. OMNI OFF, POLY ON message for Lower and Upper Basic Channel.

b. LOWER Volume data (BI 07 VV) for Lower Basic Channel.

c. UPPER Volume data (BO 07 VV) for Upper Basic Channel. When one of the above-mentioned keys is pressed while the Lower (or Upper) PROGRAM CHANGE switch being held down, a Program Change message will be transmitted.

The transmitted program change numbers are related with the GROUP, BANK and NUMBER values as follows. In the new Basic Channel.

a. OMNI OFF
b. POLY ON
c. Volume
d. Holdl ON (if Damper pedal is trodden)
c. Sostenuto ON (if Sostenuto pedal is trodden)
f. Soft ON (if Soft pedal is trodden)
When set to MIDI OUT OFF by panel operation, c,d,e
and f messages are not sent. RECOGNIZED RECEIVE DATA Status Second Third Description Note OFF, velocity ignored Note OFF kkkkkkk = 0 - 127 (15 - 113) BASIC CHANNEL IN RECEIVING 1001 nnnn Okkk kkkk Ovvv vvvv When the power is first applied, the Basic Channel is normally set to 1, and the receiver is set to the MODE 1 (OMNI ON, POLY Hold1 OFF vvvvvvv = 0 - 63 Hold1 ON vvvvvvv = 64 - 127 GROUP B However, the Basic Channel may be changed when the following key on the keyboard is pressed while the RECEIVE-CH switch being held NUMBER ; 1 2 3 4 5 6 7 8 Sostenuto OFF vvvvvvv = 0 - 63 Sostenuto ON vvvvvvv = 64 - 127 1011 nnnn 0100 0010 0vvv vvvv The receiver will be set to the MODE 3 (OMNI OFF, POLY) 1011 nnnn 0100 0011 0vvv vvvv 1011 nnnn 0101 1100 0vvv vvvv 1011 nnnn 0101 1101 0vvv vvvv If the power has been applied with the MIDI OUT switch being held down, the following Program Change message will be sent when respective number is selected by panel operation. 1011 nnnn 0111 1011 0000 0000 ALL NOTES OFF PIANO 1
PIANO 2
PIANO 3
HARPSICHORI
CLAVI
VIBRAPHONE
E.PIANO 1
E.PIANO 2 1111 1110 Notes: nnnn: MIDI Channel number ( 0000 - 1111 ), ch-1 = 0000 The Basic Channel can be changed by panel operation. Refer to 4. BASIC CHANNEL IN RECEIVING.

18